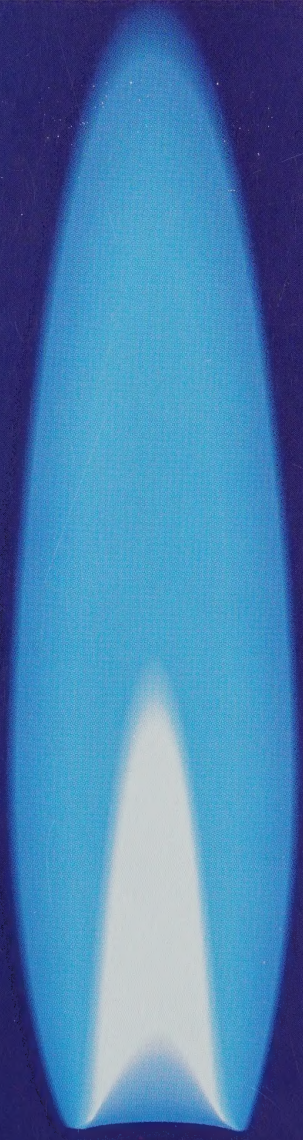
A Guide for Ontario

Natural Gas Buyers



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Preface

The move to a market-oriented system for natural gas pricing and supply has introduced a variety of new supply options for natural gas users in Ontario. Users must now decide how best to benefit from a competitive supply of natural gas and be prepared to assume the risks associated with those decisions.

The Ministry of Energy introduced this publication in 1988 to assist Ontario natural gas users in making informed and responsible decisions about buying natural gas. In response to growing interest from Ontario gas users, the guide has been updated to reflect changes in the marketplace since 1988.

This publication will provide useful information to industrial, commercial and institutional gas users on how to assess the benefits and risks of contracting for natural gas, as well as the steps required to ensure adequate supplies. It should be noted, however, that this publication is not a substitute for professional advice. Although the regulatory and commercial environment of the natural gas industry has stabilized, policies regarding the conditions under which Ontario natural gas users may contract for supplies and transportation are still subject to change. Gas users should remain abreast of these changes through ongoing contact with their suppliers, marketers, distributors, consulting professionals, the Ontario Energy Board and the Ministry of Energy.

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Introduction

Ontario natural gas users had few, if any, choices regarding the source of supply, the transportation arrangements or the prices paid for their natural gas, prior to natural gas deregulation that began in October 1985. All gas users purchased their natural gas from local distributors. Prices and terms were based on agreements between the Government of Alberta and the Federal Government, and rates and terms were regulated by the Ontario Energy Board.

The regulated natural gas prices were all-inclusive, covering gas commodity, transportation, distribution, and storage costs.

In October 1985, the federal government signed the Agreement on Natural Gas Markets and Prices, with the governments of British Columbia, Alberta and Saskatchewan.

The objective of the Agreement was to end regulation of wholesale natural gas prices and to create a competitive market for gas where buyers and sellers could freely negotiate prices. The intent of the agreement was to create new options for natural gas users and to provide them with the opportunity to "shop around" for gas supplies and transportation arrangements that best suit their needs. It was also intended to provide new market opportunities for producers.

Gas users in Ontario now have several new options and opportunities to purchase gas, often at significant cost savings. But, because many users have little or no experience with these new options, they may seem unusually complex at first.

The purpose of this guidebook is to provide an overview of the natural gas system in Canada and to assist Ontario gas users to better understand their options. The guidebook will also help users evaluate the alternatives in terms of reliability, convenience and price. There are risks involved with the different options, and this guide explains how these risks can be managed.

It is not necessary for users to become experts in the natural gas industry to benefit from natural gas deregulation. With a basic understanding of the industry, and the application of the same prudent contracting practices used to purchase other goods and services, Ontario gas users may benefit from these new options.

II

Canada's Natural Gas Production and Delivery System

Users purchase most energy, such as oil and coal, in bulk form which is delivered into storage tanks or stockpiles. When the inventory is depleted to a certain level, it is replenished.

Natural gas is purchased differently. It is not practical for users to store or maintain inventories of natural gas. Like electricity, natural gas is used on demand. The gas production and delivery systems must be able to deliver users' daily gas requirements as well as respond to demand when the weather suddenly turns cold, or when a factory steps up production.

Ontario natural gas users are served by one of the most responsive and reliable natural gas pipeline and distribution systems in the world, and are supplied by the large natural gas resource base of Alberta, Saskatchewan and British Columbia. Before contracting for gas supplies and delivery services, it is helpful to understand in general terms how the industry operates.

Natural Gas Production

Natural gas is produced from wells drilled into hydrocarbon-bearing geological structures or formations. In most cases, there are several wells tapping into the same geological structure, which is often referred to as a gas field or reserve. Natural gas production techniques and the rate of production are closely regulated by provincial regulatory boards (e g , the Alberta Energy Resources Conservation Board) to ensure wise use of the reserve.

Typically, a natural gas reserve is held by several production companies, with the largest company acting as the field or reserve operator. There are more than 1,000 active producers in Western Canada today. They supply almost all of Ontario's natural gas requirements. The gathering systems and processing plants serving a gas field are also owned and operated by producers.

Raw natural gas from a well is mostly methane. It may also contain ethane, propane, butane, pentane, water, sulphur compounds and solid matter such as sand, so it has to be cleaned up to meet industry specifications before it becomes "marketable" or "pipeline quality" gas.

The gas wells are connected by a series of pipelines, often referred to as a "field gathering system," that lead to a gas processing plant, where impurities such as sand and sulphur are removed. Other valuable hydrocarbons, such as ethane and propane are extracted.

Intra-Provincial Transportation (NOVA and TransGas)

After it has been processed, the "marketable" natural gas enters high pressure intra-provincial gathering systems, such as NOVA's pipeline system in Alberta or the TransGas Pipeline system (formerly Saskatchewan Power Corp.) in

Saskatchewan. These pipelines have 750 and 140 reception points respectively, connecting thousands of gas fields and reserves to the main, high pressure transmission lines. Once a producer's natural gas enters the mainline system, it mixes with all other gas in the pipeline.

Compressors are installed at regular intervals along the intra-provincial pipeline, to move the gas through. The gas is compressed and pushed through the pipeline, which can be as much as 122 centimetres (four feet) in diameter, to interconnection points with the TransCanada PipeLines Limited (TCPL) system.

The design and operation of the NOVA pipeline system are subject to several Alberta codes and regulations governed by the Alberta Energy Resources Conservation Board (ERCB). NOVA's transportation rates, contract terms and conditions are set by NOVA. These rates are subject, on a complaint basis, to regulatory overview by the Alberta Public Utilities Board.

TransGas is a provincial crown corporation. Its parent company, the Saskatchewan Power Corporation, is responsible to the Saskatchewan government for TransGas's operating procedures, tolls and tariffs. There is no regulatory board governing TransGas.

Both TransGas and NOVA tolls are structured on a demand/commodity basis. They also have "postage rate" tolls which do not vary with the distance the gas must be transported within the province to the interconnection with TCPL. NOVA also offers shippers an interruptible gas transportation service. TransGas does not offer this service, but may in the near future.

At this point in time, most B.C. gas sold in Ontario is connected to the NOVA system by producer-owned pipelines.

Removal Permits

The Alberta, Saskatchewan and B.C. governments require that a removal permit be issued by their respective ministries of energy before gas produced in the province is transported out of the province. The purpose of the removal permit is to enable the governments to know from which specific reserves the gas will be produced, where the gas is destined, and how much is being shipped. It also enables governments to keep track of the price of natural gas and the length of the purchasing contracts.

TransCanada PipeLines Limited (TCPL)

The NOVA pipeline interconnects with TCPL's pipeline system at Empress, Alberta, on the Alberta-Saskatchewan border. The TransGas system interconnects with TCPL at points in Saskatchewan such as Bayhurst, Success and Liebenthal. TCPL transports all Alberta and Saskatchewan gas destined for Ontario, and delivers gas to distributors at several delivery points on its pipeline.

All aspects of TCPL, including design standards, facilities construction, pipeline tolls and tariffs, and access to the transportation system are regulated by the federal government through the National Energy Board (NEB).

Unlike NOVA and TransGas, TCPL's tolls are based on distance as well as volume. TCPL has three delivery zones in Ontario: the western, northern and eastern zones. Each zone has its own approved toll.

Tolls for TCPL's firm transportation services, which assures uninterrupted delivery, are based on a two-part structure. The demand component is a fixed monthly reservation charge based on the shipper's contract volume. The commodity portion is a variable charge payable for each 1,000 cubic metres delivered.

Distribution

There are three major local distribution companies ("distributors") in Ontario: The Consumers' Gas Company Ltd., Centra Gas Ontario Inc. (formerly ICG Utilities (Ontario) Ltd), and Union Gas Limited, which receive gas from TCPL at interconnection points commonly referred to as "city gates." Union and Consumers are located entirely in TCPL's eastern zone, while Centra is spread across all three Ontario zones. The utilities distribute the gas through their system of mains and laterals to users.

Distributors offer gas users a variety of services ranging from fully "bundled" to "unbundled" firm service and lower priority interruptible gas services. Bundled gas services are essentially a package of services combined under a single rate for user convenience. Such services include gas supply, load balancing and storage costs. Rates are usually based on the "average" user in the particular rate class. Most gas users currently use bundled gas service.

"Unbundled" gas service prices each service separately. These services can be tailored to meet the user's specific requirements. Unbundled services are attractive to users who require a different mix of services from the average user in the rate class.

Distributors also offer interruptible service at a lower cost than firm service. During peak periods when demand for gas exceeds the capacity of the distribution system, the distributors can, in some cases, divert an interruptible user's gas supply to higher priority users. Interruptible service is generally used by users who can switch to alternative fuels, such as heavy fuel oil, when their gas deliveries are switched off.

Ontario distributors are regulated by the Ontario Energy Board (OEB) which approves or sets rates for gas sales, transportation and storage services.

Storage

Substantial underground storage facilities have been developed in southwestern Ontario. These facilities are owned and used primarily by the three major distributors, Consumers Gas, Union Gas and Centra Gas. When TCPL deliveries to a distributor exceed user demand, the excess gas is injected into storage. When the demand for gas exceeds TCPL gas deliveries, normally during the peak days of the winter heating season, gas is withdrawn from storage.

The development of and rates charged for storage service are regulated by the OEB.

Impact of Deregulation

Deregulation in October 1985 did not change the flow of gas from the western provinces into Ontario. The structure and ownership of the processing plants, gas pipelines, and distribution systems also remains the same. The operation of gas fields, the approval of new pipeline facilities, and the tolls and tariffs of pipeline and distribution systems also continue to be regulated by federal and provincial agencies. What changed is the pricing system for natural gas. The price of gas at the Alberta border is no longer set by an Alberta/federal government agreement. There is also easier access to the pipeline and storage systems.

Prior to deregulation, almost all gas consumed in Ontario was supplied by TCPL. TCPL purchased its gas from more than 700 producers, typically at the interconnect point between the gas processing plant and the NOVA pipeline. Most gas was purchased under long-term contracts, thereby forming a large pool of gas reserves. TCPL contracted with NOVA to ship its gas to its pipeline at Empress, Alberta. TCPL also held long-term removal permits from the Alberta government to remove its gas from the province to supply Ontario and other markets.

TCPL transported gas on its pipeline system to the various connecting points with Ontario distribution systems. At these delivery points, or city gates, TCPL sold gas to Ontario distributors. The distributors delivered the gas to homes, businesses and factories and sold it to users at their plant gate or burner tip.

Distributors do not mark up the acquisition cost of gas. They sell gas at their average purchase price, plus the cost of distribution. Larger users usually enter into short-term sales contracts (1-2 years) with distributors. Smaller users normally do not have a formal contract with the distributor.

Prior to deregulation, the prices for all of these transactions — from the field to the burner tip — were linked to crude oil prices and were closely regulated by federal and provincial governments and their agencies. At the time of the October 1985, Gas Agreement, the regulated price of all gas at the Alberta border destined for Ontario was $2.79 per gigajoule (GJ). No Saskatchewan gas was sold outside that province.

Deregulation has not changed the way in which gas is physically transported or distributed. However, the nature of the contractual links between sellers and buyers has changed considerably.

For example, the distributors now purchase gas near the Alberta/Saskatchewan border from a range of sellers including TCPL's marketing affiliate, Western Gas Marketing. The distributors also hold most of the TCPL pipeline capacity used to transport gas to their franchise areas.

Since deregulation, several companies called "marketers," "supply aggregators," "demand aggregators" and "brokers" have entered the market-place.

A marketer is any company which has title to and sells gas. A producer may also be a marketer. A supply aggregator is a marketer which specializes in contracting with several producers for gas supplies to form a diversified supply

pool. Marketers now negotiate the prices, volumes and terms of gas supply contracts directly with purchasers.

A demand aggregator is a company which organizes users into a group for the purpose of buying gas directly from marketers. Normally a demand aggregator does not take title to the gas but acts as agent for the users. Brokers, in the strict sense of the word, are those who bring together buyers and sellers of gas without taking title to the gas themselves. They provide a wide range of services to buyers and/or sellers. (However, the term "broker" is also loosely used as a synonym for "marketer"). Consultants are also active in assisting in the direct purchase of gas.

Typically, marketers and producers have entered into firm transportation contracts with NOVA to transport gas to the interconnection points with the TCPL pipeline. In Saskatchewan, the producer must hold the transportation contract with TransGas.

The user who holds title to the gas must also arrange transportation by TCPL and the distributors from the point of purchase to the point of consumption. The various options are explained in detail in later chapters. However, it is useful to understand what actually happens when gas is transported by TCPL to Ontario.

Natural gas moves at approximately 30 kilometres an hour, which means it would take about 4. 5 days for gas to travel from Alberta to Toronto. But all gas in the pipeline is essentially identical. For this reason, the TCPL pipeline is often likened to a very long, horizontal storage tank. The pipeline is always full and TCPL owns the contents or inventory, called the line pack.

Shippers put gas into the system in Alberta or Saskatchewan and withdraw an equal amount from TCPL's line pack the same day in Ontario.

The relationship between the volumes of natural gas delivered to the user's location by the distributor and the volumes purchased from the marketer depends upon the transportation and load-balancing arrangements with the user's distributor. The marketer or producer may deliver a constant volume of gas every day at a delivery point such as the Alberta border, or the volume may be matched to the user's actual demand each day.

The constant volume, or daily contract quantity, would generally be the user's annual consumption divided by 365. But users usually require varying volumes each day, depending on weather, plant operation schedules and so on.

In such cases, the distributor provides a valuable load-balancing service, supplying "make-up" gas on days when the user needs more than the average volume and reallocating "excess" deliveries at times when less than the average is required.

In effect, the distributors, the pipeline companies such as TCPL, and the producers provide and maintain the inventory from which users draw their hourly and daily gas requirements.

III

Criteria for Assessing Different Gas Supply and Transportation Options

Ontario gas users should carefully evaluate the different gas supply options. To do this, each user must understand its overall requirements and particularly, its patterns of energy consumption. Users who are unfamiliar with the natural gas market are encouraged to retain professional advice. Distributors, marketers, producers and TCPL are also a valuable source of information and advice. The following outlines some of the key considerations a user should take into account before choosing a gas purchase option.

User Gas Requirements

The volume and pattern of energy consumption largely determines which option will best suit the user. Therefore, users should determine the answers to the following questions before making a purchase choice:

- How much energy is consumed each day? Annually? This can be estimated from invoices, or distributors may provide this information.

- How much does energy consumption vary day-to-day? Year-to-year?

- How accurately can annual energy requirements be forecasted?
- Is natural gas used solely for space and water heating, or is it also used in a manufacturing process?
- Is gas used at one or several different locations? Are they located in more than one distributor franchise?
- Can all or some of the gas-using equipment be switched to alternative fuels such as light or heavy fuel oil?
- Are energy requirements expected to change in the next one to two years? Are any plant shut-downs anticipated?

If a user has several plants or purchases gas in conjunction with other users, or if other fuels are capable of being used, it may be possible to reduce the overall fluctuations in daily gas consumption. The higher the purchasing load factor, the greater the cost savings may be as a result of more efficient use of pipeline and distribution facilities.

Users should note that the current policy of the Alberta government does not allow the issue of removal permits for short-term direct sales of gas destined for residential, commercial or small industrial users. Saskatchewan and B.C., however, do allow such sales.

The user should also consider what human resources are available to administer the gas supply function. If the user has a full-time energy manager, then it can seriously consider "unbundled" options that require continuing attention by the user. Otherwise, buy/sell options or bundled T-service may be more suitable.

There are no technical limitations on the size of user who can undertake the available options. But, there are regulatory and economic limitations. For instance, Alberta currently has volume restrictions on direct purchase eligibility. TCPL will not contract with shippers who wish to transport less than 100 cubic metres a day. Perhaps the most important limitations are economic. Legal costs and consulting fees can quickly erode any savings negotiated

on small volumes of gas. Small users may also find that gas marketers and producers are reluctant to enter into small volume supply agreements where costs may exceed their profit margins. However, there are professionals who can provide advice on how to overcome these limitations.

Small users have alternatives. They may wish to form cooperatives and purchase gas as a group. Or a customer with several plants may wish to consider including several of these under one gas purchase contract with a marketer or producer. There are several companies which specialize in aggregating smaller loads into groups.

This approach may have the advantage of improving load factor as well. Group purchases may enable smaller users to realize savings over purchases from distributors. In fact, this approach has been used successfully by many Ontario institutions and municipalities. However, it is important that the user, when entering into such an arrangement, be fully aware of the associated risks and ensure that the method of calculating the users' share of the savings and the payment schedule of these savings are clearly set out in the agreement.

The rule is "buyer beware". Although there is little risk in purchasing gas from the distributor, other options require care and attention by the user. When a user chooses an option other than purchasing from the distributor, the user assumes the responsibility for ensuring a suitable supply of gas.

Evaluation Criteria

In order to evaluate the differences between the numerous options, experienced gas purchasers use three criteria:

- The reliability and the level of risk associated with the gas supply and transportation arrangements. If it is a long term arrangement, is there flexibility in the contract to respond to changing conditions?

- The convenience of the arrangement. How much time and effort are required by the user to put the arrangement together and manage it on a continuing basis?

- The price of the gas. Do the savings associated with certain options offset any inconveniences, costs and added risks?

Reliability and Flexibility

The reliability of gas supply and transportation arrangements from the gas field to the burner tip should be of serious concern to a gas purchaser. The Canadian gas industry is very modern and sophisticated and the risk of interrupted gas supply because of physical breakdowns is small.

However, gas users should be aware that no option, including purchasing gas from a distributor, is 100 per cent fail-safe. Risks do exist and disruptions have occurred. Through prudent contracting practices, these risks can be reduced to acceptable levels.

Gas users should be aware of the following risk factors:

- **Inability or Failure of a Gas Marketer or Producer to Deliver All of the User's Contract Volumes.** This can happen for several reasons such as operational failure or scheduled maintenance of gas processing plants; geological failure of a gas reserve (e.g., intrusion of water); the bankruptcy of a marketer or producer; too much contract demand on a gas reserve or pool of reserves; or failure to receive gas removal authority from the province of origin.

- **Loss of Transportation Capacity or Failure of Transportation Systems.** Gathering and transmission systems, such as NOVA and TransGas, are more complex and so are more susceptible to interruptions than the TCPL system. Interruptions on the intra-provincial systems are due mainly to reservoir, gathering-line and processing-plant problems.

A physical failure on NOVA, TransGas or TCPL, while a rare occurrence, can shut down much of the transmission system, affecting all Ontario gas users. It is very difficult for an individual gas user to avoid such risks. In the event of problems, available remaining capacity is usually allocated among all users on a priority basis. Through the co-operation of all sectors of the industry and well developed contingency plans, the impact of such emergencies is mitigated.

It is also possible to lose the transportation capacity if either the marketer, the producer or the user has not contracted for the appropriate transportation service. The most common problem occurs when a user has contracted for a firm gas supply, but the gas is shipped under an interruptible transportation service on any one of the pipeline systems. If a pipeline company interrupts its service, the user's gas supply could be interrupted. To overcome this risk, gas users who require firm supply must ensure that adequate firm transportation capacity is under contract by all parties, for all of the pipeline systems, for the full period of the supply contract.

A user should anticipate every eventuality in drawing up the supply contract. An unplanned interruption in transportation service can leave the user without natural gas to heat or operate its plant. It can also be very costly.

- **Inability of User to Take Gas**. Sometimes users, particularly industrial buyers, encounter problems that restrict their ability to consume the full quantities of gas under contract. For instance, unplanned plant maintenance can interrupt gas consumption. Unless the user has anticipated these possibilities, it may be exposed to financial penalties from pipeline demand charges.

It may be possible to alter the contract quantities or assign excess gas and transportation capacity to other purchasers. Planning for such contingencies in advance can reduce the risk of financial penalties.

Many of the gas supply and transportation options have measures built into them to reduce the risk of disruption.

Under other options the user must take steps to ensure that the risks have been properly foreseen and dealt with. (See Chapter IV).

Convenience

Certain purchasing options require less effort and attention by the gas user. Marketers, producers, brokers and distributors look after most of the details. Other options require a large commitment of time and resources by the user to put the arrangement together and manage it.

A user looking for convenience should consider the following:

- Is an assessment of the marketer's/producer's pool of reserves required?
- Who arranges backstop gas supplies?
- Who makes the transportation arrangements on NOVA? on TCPL?
- Who is responsible for obtaining provincial removal permits and other regulatory requirements?
- Is the user required to make regular nominations for gas supply?
- Who will handle payments required to be made to the distributor, TCPL and the gas suppliers?

The amount of time and resources, and therefore costs, that the user must devote to the matter of gas supply can vary greatly. Users should also take into account the fees charged by brokers, consultants, lawyers and distributors when evaluating the different purchasing options.

Price

The criterion that most users focus on is price. Prices can be quoted several different ways: per gigajoule ($/GJ); per million British Thermal units ($/MMBTU); per 1000 cubic feet ($/MCF); or per 1000 cubic metres ($/$10^3m^3$).

Prices are also quoted at several different locations: at the field, at the Alberta border, at the TransGas/TCPL interconnection point, at the city gate, and at the user's plant gate or burner tip.

When comparing gas supply options, users should first consider the price per unit of energy ($/GJ or $/MMBTU). The energy content per cubic metre of gas can vary among suppliers.

In general, price comparisons of different gas supply options should be made at the point of gas purchase (e.g. , Alberta border) and at the user's plant gate. The user must ensure that no elements are omitted, and that the relative importance of any price differences and savings are put in the context of the user's total gas bill.

However, purchasing decisions should not be made solely on the basis of price comparisons. Users should also consider the potential costs of a supply failure and the cost of resources required to arrange and manage the gas supply.

Special Considerations for the Small User

In addition to the other considerations explained in this guide, there are some special considerations that apply to small gas users for whom direct purchase would be uneconomic unless they participate in a group arrangement with other users. For example, distributors currently charge administration fees up to $225/month for certain direct purchase arrangements. In these circumstances, small users entering into a direct purchase in which the projected annual savings are less than $2700 would actually lose money.

Further, small users do not purchase sufficient gas to be of interest to marketers or producers on a stand-alone basis. Therefore, small users often participate in direct purchase arrangements as members of a larger purchasing group. Any gas user with an annual gas bill of less than $50,000 would probably fall into this category.

There are a number of companies that specialize in aggregating users into groups for the purpose of entering into direct purchase arrangements. Not all the gas users in the group will necessarily be small but many will be. Demand aggregators will typically negotiate with producers or marketers for gas supply on behalf of the group of users, make all the arrangements with the local distribution companies, and administer the direct sale arrangements on a ongoing basis. Frequently, these companies will employ marketing techniques such as telemarketing and advertising in the mass media to attract large numbers of small users into a group.

A small user interested in a direct purchase should examine the proposal closely to ensure that the savings generated will exceed the costs incurred. In particular, the user should determine the following:

- **What are the projected savings to the user from the direct purchase?**

  If they are expressed as a percentage of "gas costs," which gas costs are specified? Most aggregators will quote the projected savings as a percentage of the price that the distributor pays for gas at the Alberta/ Saskatchewan border. This price is much lower than the price the user pays the distributor for the delivered gas at the burner tip. A projected saving of 10% on the distributor's gas costs may translate into a saving of less than 5% of the user's delivered gas bill.

  Will the user receive a percentage of the gross savings of the transaction? If so, what share? If the share is of savings after the deduction of certain of the aggregator's costs, are the costs spelled out and estimated as a percentage of the gross savings? Is there a "cap" on the aggregator's costs?

- **Will the aggregator profit in any way from the transaction, other than through the quoted fees or percentage of savings?**
- **Will savings be paid to the user monthly, semi-annually or annually? If not monthly, how will interest be paid to the user?**
- **Is the user required to pay an up-front "registration" or "signing" fee? How long will it take to recover the fee from the projected savings? Does the aggregator offers any guarantees with respect to savings?**
- **How long is the user contractually committed to the arrangement? Is there an "escape clause?"**
- **Does the aggregator offer a written contract?**
- **What are the risks and potential liabilities of being part of a group direct purchase?**

The user should investigate alternative arrangements by contacting other aggregators and by talking to the local distributor's representative and to business associates to learn of their experiences with the various aggregator companies.

Direct gas purchases may enable small users to realize worthwhile savings on their annual gas bills. However, the magnitude of the savings will depend on the precise contractual arrangements with the aggregator. These arrangements should be closely examined.

IV

Ontario's Gas Supply and Transportation Options

Prior to deregulation, Ontario gas users purchased their gas supplies only from local distributors. Their options were limited to interruptible or firm gas supply. Gas supply contracts between industrial users and distributors typically ran for one year and were backed by distributors' long-term gas contracts with their supplier, TCPL.

Today, users can choose from a wide range of supply options from different marketers and producers as well as a variety of transportation arrangements.

Distributor Supply

This is the base option against which all other supply options are compared. It involves purchasing gas from the distributor under an approved Ontario Energy Board rate schedule, in the absence of a buy/sell arrangement.

Distributors offer traditional gas sales service, which includes distribution, storage, and load balancing, provided under one rate. The user is not exposed to TCPL or NOVA demand charges in the event of customer load factor variations.

Non-Distributor Supply

In today's market, it is practical for a large number of Ontario users to purchase gas directly from marketers and producers. The factors involved in developing a direct purchase arrangement are explained below.

Sources of Gas

Most gas used in Ontario comes from Saskatchewan and Alberta although increasing volumes of B.C. gas are being purchased. In all three provinces, the supply of gas currently exceeds what the pipeline systems can transport. However, pipeline systems are expanding their capacity and the surplus supply is expected to be reduced over the next few years.

Natural gas from the three provinces is similar. However, there may be some difference in the energy content — Saskatchewan gas often has less energy per unit volume than Alberta gas. This should not be overlooked in the negotiation of price.

The regulations governing removal of gas from each of the provinces are different, though all provinces require permits which must show reserves data, the sale price, the purchaser, and the marketer/ producer. Alberta has restrictions on contracts for the non-industrial gas market. Saskatchewan and B.C. have no such limitations. The user should discuss this situation with its distributor or broker.

Ontario users may also have access to U.S. gas. New pipeline facilities to connect major U.S. pipelines with pipelines in southwestern Ontario have recently been completed. Interested users should note that the U.S. natural gas market is complex and professional advice should be obtained.

Alternative Gas Supply Contracts

Another factor to be considered is the type of gas supply contract. At one end of the spectrum of options, users may choose to explore and develop programs to establish their own reserves of natural gas. Or they may choose to purchase proven reserves in the ground or to prepurchase gas that will be delivered over a future period. These are long-term options often requiring specialized geological knowledge and expertise. They are not practical options for most Ontario gas users.

More typical approaches to gas supply are reserve-based or deliverability-based supply arrangements.

Reserve-Based Gas Supply - Under a reserve-based contract, a producer dedicates all or part of specific, well-defined gas reserves in a specific location to the gas user. It also commits to deliver a daily quantity of gas from the reserves.

Reserve-based supply contracts are only one step removed from purchasing reserves in the ground. In most circumstances they are not suitable for most gas users or producers seeking short-term contracts.

Deliverability-Based Gas Supply - This is the most common type of gas supply available today. Under a deliverability contract, the seller undertakes to deliver specific volumes of gas to the buyer at a specific location, without saying where the gas will come from.

Natural gas marketers purchase gas supplies from a variety of producers under both reserve- and deliverability-based contracts to meet their commitments. In general, the larger and more varied a marketer's pool of reserves, the more reliable the supply will be. Often producers that make up a marketers' pool have agreed to backstop each other. The terms of such agreements are also important to examine when evaluating the reliability of a marketer's pool.

Producers with a variety of gas reserves in several different locations can also offer reliable gas deliveries from their own pool of reserves.

When evaluating supply alternatives, users must ensure that the producer or marketer has adequate gas production from the pool of reserves to deliver full contract quantities at all times. The user should also assure himself that a supplier's sales contracts do not exceed the reserves pool.

If the user's gas supply is being delivered from a small number of reserves, it should request an independent reserve evaluation showing whether the reserves can collectively meet its contract requirements.

In all cases, the user should assess the reputation of the marketer and producers involved by asking other buyers, and checking the marketer's financial integrity.

Users must also ensure that a marketer or producer has adequate firm transportation arrangements on NOVA and TransGas to transport the gas from the field to the point of purchase. NOVA recommends that its shippers, in general, contract for an additional 20 per cent of transportation capacity above delivery commitments.

Most buyers seek performance warranties in their gas supply contracts, stipulating the adequacy of the marketers' gas supply and transportation arrangements.

Transportation Arrangements

Under the base option, gas is purchased from the distributor at the plant gate or burner tip, and transportation is not an issue for the user. Under other supply options, transportation of the gas from the point of purchase in the western provinces to the point of use must be arranged by the user with the distributor and/or TCPL. There are four basic transportation options:

- Contracting for transportation service, first on TCPL and then bundled or unbundled T-service on the distributor's system.
- Contracting for transportation on TCPL and selling the gas to the distributor under a city-gate or Ontario buy/sell, at the point where the distributor's pipeline system and TCPL interconnect. The distributor will move the gas to the point of use.
- Selling the gas to the distributor before it enters the TCPL system, under an Alberta-border or western buy/sell. The distributor will arrange transportation to the point of use.
- Purchasing gas from Western Gas Marketing Limited, under a "System Gas Resale Agreement" (SGR). (Recently Western Gas Marketing has ceased to offer SGRs to users on the Consumers Gas and Union Gas systems).

Because pipeline capacity from the western provinces is limited, users should make doubly certain that adequate pipeline capacity is reserved to deliver their gas. Firm supply commitments must be backed up by firm transportation arrangements. Users should also note the expiry dates and notice of renewal requirements for their transportation arrangements.

Finally, users should note whether they are able to supply their own TCPL fuel gas under the transportation option in question. Distributor policies vary on this point. (More detail is provided below.) Generally, users will realize additional savings if they provide their own fuel gas, rather than have it supplied by the distributor.

The following sections describe the transportation options:

T-Service on TCPL and Unbundled T-Service on the Distribution System

Contracting for transportation service (T-service) on both TCPL and the distribution systems (unbundled distributor T-service) is usually only of interest to buyers who use large volumes of gas and can predict their requirements accurately on a daily and annual basis. Under this option, users contract with the distributors for separate services such as load balancing and storage in order to maintain a constant daily demand under their TCPL T-service contracts.

Users interested in T-service on TCPL may be able to lease capacity from their distributors (i.e., some distributors will assign part of their firm service capacity rights on TCPL to users located in their franchise). Otherwise, users will have to contract directly with TCPL.

Contracts for firm capacity on TCPL are for a minimum of one year, and the user agrees to pay a monthly demand charge (a reservation fee) for each unit of capacity contracted. It pays the same monthly demand charge whether or not the capacity is used. The user also pays a commodity charge for each unit of gas actually shipped, and provides the fuel gas required to move the gas through the pipeline (on average over a year, about 7 to 8 per cent of gas shipped to the eastern zone of TCPL's system).

The risk under this option is that some unforeseen event may prevent the user from operating at the planned load. This would mean the user pays for unused capacity, increasing its delivered unit cost for gas. T-service arrangements should be made in advance, and require a relatively large commitment of time and resources. Any user interested in this option should contact TCPL and its distributor and read the General Terms and Conditions of TCPL's tariff book closely.

T-Service on TCPL and Bundled T-Service on the Distribution System

Some distributors offer a bundled T-service at either the Ontario city gate or the Alberta border. Consumers Gas, for example, offers bundled T-service on its system from its city gate to the burner tip. Gas users wishing to contract for such a service with Consumers may arrange an assignment of transportation capacity on TCPL from Consumers or contract directly with TCPL for capacity to the city gate.

The "bundled T" is similar to the buy/sell options. The service combines or "bundles" transportation, load balancing, and storage on the distributor's system. However, unlike the buy/sell, the gas user retains title to the gas through to the to the burner tip. The user does not sell the gas to the distributor. While the bundled T is not as widely used as the buy/sell, the cash flow implications to the end user of the bundled T may offer a price advantage over the buy/sell in some circumstances. Certain users may wish to consider bundled T as a means of minimizing the impact of the GST. Finally, under the bundled T option, as in the case of the unbundled T, the user can (and must) provide its own TCPL fuel gas. Bundled T is an option that large users may wish to examine. However, users should be aware of the risks of unabsorbed demand charges on TCPL and the distribution system if their actual consumption during the contract year falls below the contracted capacity (See page 39 for further details).

T-Service on TCPL and City-Gate or Ontario Buy/Sell with the Distributor

Under a buy/sell arrangement, the user purchases gas from a supplier, and resells it to the distributor at the latter's approved buy/sell purchase price at that particular point. The difference between the user's purchase and resale price is its savings. Under a city-gate buy/sell arrangement, the user contracts with TCPL to have its gas transported to the distributor, at the point where the distribution system

connects with TCPL, then contracts to sell the gas to the distributor at a price reviewed by the OEB.

The distributor delivers gas to the user's facilities on a "business as usual" basis. The distributor provides the usual services of load balancing and storage, and bills the user the OEB approved rate for the appropriate class of service for the actual gas consumed. The amount of gas the user sells to the distributor must be within 4-5% of the amount that the user consumes on an annual basis. Otherwise, volume adjustments are required over the contract term.

The distributor monitors the actual volumes the user consumes. If it appears that the user will use less gas than the allowed variation, the distributor may reduce its purchases from the user. In this situation, the user may be exposed to financial costs under its gas supply contract and unused capacity costs on the TCPL T-service contract.

If the user consumes more gas than it contracted to supply the distributor, the additional volumes will be supplied by the distributor at the distributor's acquisition cost (unless the user can arrange the assignment of additional TCPL capacity). The user does not get the purchase discount on the additional volumes. However, the user may arrange to sell the additional volume to the distributor in the beginning of the second year of the buy/sell agreement, and realize the saving then.

Under a city-gate buy/sell, the user will also incur unused capacity charges (i.e., demand charges) on TCPL if the supplier fails to deliver.

Western Buy/Sell with the Distributor

Most users have selected the western buy/sell option offered by all distributors. It differs from the city-gate buy/sell in that the distributor takes title to the gas upstream of the TCPL system, rather than downstream. The user sells

the gas to the distributor at the Alberta border or the TransGas/TCPL interconnection, at the distributor's approved buy/sell purchase price at that point. The user realizes the savings in the difference between the gas purchase price and the sale price to the distributor. The distributor purchase price varies with each distributor depending on its portfolio of gas supply contracts.

The distributor contracts with TCPL for firm transportation service to carry the gas it has purchased. The distributor delivers gas to the user on a business-as-usual basis, providing load balancing and storage at the Ontario Energy Board approved rates for the class of service provided. The cash flow implications of this approach are similar to the city-gate buy/sell.

This approach is popular with users served by Centra Gas and Consumers Gas who do not want to bear the risk of unused capacity charges on the TCPL system associated with the city-gate buy/sell. With Centra, users can provide their own fuel gas for transportation on the TCPL system.

However, if a user served by Consumers wishes to have the distributor assume the TCPL capacity charge risk, the user is unable to provide TCPL fuel gas; it will be supplied by Consumers at a cost likely higher than that of the fuel gas the user could provide. The result for such users is that delivered costs may be higher than under the T-service or city-gate buy/sell options. Detailed comparison of these options is provided in the next chapter.

In the case of a western buy/sell with Union Gas, direct purchasers bear the risk of unused TCPL capacity charges and are able to provide their own supply of fuel gas on TCPL.

Users must respect similar tolerances (i.e. 4-5%) between forecasted annual consumption and actual consumption as with a city-gate buy/sell.

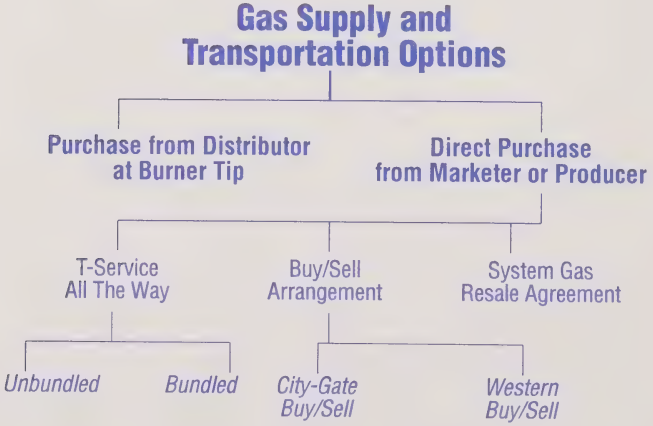
System Gas Resale Agreement (SGR)

Western Gas Marketing, the marketing arm of TCPL, offers Alberta gas at negotiated prices to qualified industrial gas users served by Centra Gas. Under this arrangement, Western Gas will sell the gas to the user at the Alberta border at a negotiated price. The user immediately sells the gas back to Western Gas at the price which the user's distributor pays Western Gas for long-term gas supplies. The user's saving is realized from the difference between the prices at which the gas is bought and sold at the Alberta border.

Western Gas in turn delivers and sells the gas to the distributor as part of its gas supply. The gas then flows from the distributor to the user under a normal distributor sales contract and rate schedule.

Summary

The following chart summarizes the options available to Ontario users in today's natural gas market.



Users may wish to seek indemnification from their suppliers to cover unused capacity charges, i.e., demand charges on TCPL and possible distributor charges that may be incurred in the event of a supply failure. Users may also wish to indemnify themselves against additional costs of arranging replacement supplies.

Ontario distributors offer a backstopping service if a user's supplier doesn't deliver. The backstopping terms are either on a firm or best-efforts basis, depending on the distributor. Each distributor's price also varies. Generally, the price will be at least the distributor's cost to acquire the backstop gas, or the current average price it is paying under its own gas supply contracts, whichever is higher.

In practical terms, a user can generally rely on distributor backstopping, including best-efforts backstopping, unless a user's supply is interrupted on what is referred to as a "design peak day." This is a day on which the storage withdrawal system and the transporting pipeline system are both operating at technical capacity — which is a rare occurrence. On other days, distributors should be able to provide backstop gas supply. However, the availability of backstopping services must not reduce the attention users devote to ensuring a reliable source of supply, because backstopping services are likely to be expensive.

Users should discuss backstopping along with other aspects of the direct-purchase arrangements with their distributors.

V

How to Proceed

The purpose of this chapter is to explain the steps that users should take to arrange gas supplies and transportation services, including analysis of the different options. Users should allow a minimum of two months to make all the arrangements.

Estimating Gas Costs

The user should begin by forecasting its annual gas cost over a one or two-year period. The most reliable method is to discuss estimated prices for the appropriate rate schedule with the distributor as well as the sensitivity of the user's consumption to weather conditions. This becomes the basis for comparing the prices, reliability and convenience of other options.

Example

The annual gas bill of a user who consumes 3,650,000 cubic metres per year (137,240 GJ*) at a 90% load factor served by Consumers Gas under its Rate 110 in effect in 1991 would be:

Customer and Demand Charges .....$ 35,333

Commodity Charges .....$ 437,642

Total Cost .....$ 472,975 or $ 3. 45/GJ

*Assuming 37. 6 megajoules per cubic metre (MJ/m^3)

Alternative Gas Supply Arrangements

Users should get bids or quotes from 3 or 4 marketers and producers. Large users may wish to seek bids from a greater number. Distributors can supply users with a list of marketers, if required. The user's request for quotations on gas supplies should specify the volumes of gas required and request the following information, in addition to price:

- The size and diversity of the marketer's or producer's pool of gas reserves. In the case of marketers, the details of the contractual arrangements under which the marketer has acquired the gas, and details of the backstop arrangements between producers.
- An indication of the financial viability of the marketer and producers.
- References of other gas sales.
- Details about the firm transportation under contract by the marketer and producer on the NOVA or TransGas pipeline systems, relative to delivery commitments.
- Whether the producers supplying the marketer are prepared to be parties to the gas supply agreement with the user.
- In the case of Alberta or B.C. gas, whether the marketer or producer will seek the removal permit. (In Saskatchewan, the producer must apply for and hold the removal permit).
- Whether the price includes all royalties and taxes including the TOPGAS levy and any changes in such levies or transportation tolls during the contract period. In the case of Alberta gas, it should be clear who is responsible for the TOPGAS levy. The TOPGAS levy is a charge on all Alberta gas entering the TCPL pipeline, to share in the cost of take-or-pay payments made to producers during the early 1980s.

The Gas Contract

Once the gas supply bids are evaluated for reliability, convenience and price and a decision is made about which source of supply to pursue, it is necessary to formalize the arrangements through a gas purchase contract. Depending on the complexity and the number of agreements, it may be wise to seek legal advice from someone specializing in gas contracts at this stage. The distributor should be informed early of the proposed timetable.

The gas supply contract requires the greatest attention. This is the arrangement that is the least regulated with respect to contract terms and conditions. It is also the most flexible between buyer and seller, since various terms and conditions can be negotiated into a contract. The TCPL and distributor transportation contracts are standardized and the terms and conditions are reviewed by federal and provincial regulatory boards.

Some of the important elements that should be included in the gas supply contract are discussed below:

- The contract duration should be specified. Most direct purchase arrangements are for one to three years with prices fixed for each year. Some contracts allow prices to be renegotiated at the end of each year; if the parties are unable to agree on a new price, the contract ends. The prices in other contracts are indexed to distributors' buy/sell purchase prices.
- Another option is a medium-term contract, for three to five years, with the price fixed in the first year or two, and a renegotiation clause for determining prices in subsequent years. Failing agreement, the prices on larger contracts are often settled by arbitration. In the case of the latter option, the parties should clearly set out the guidelines the arbitrator should use in making the decision and a procedure for selecting the arbitrator. This is particularly important in the case of Alberta gas where the Alberta Arbitration Act may apply.

- The annual and daily quantities of gas to be purchased under the contract must be specified. Gas purchase contracts made in conjunction with buy/sell arrangements on the distributor's system provide — in the case of Consumers Gas and Union Gas and utilization of TCPL's FS service — for the delivery of the same amount of gas every day of the year. The figure is derived from the estimated annual consumption divided by 365. In the case of Centra Gas the formulation is slightly different because Centra Gas operates at different rates of take across its system. (If TCPL FS service is not available through the distributor, potential direct purchasers should consult the distributor about the availability of FST service).

- Price at the delivery point should be clearly set out. The contract should specify whether the price includes royalties, transportation charges on NOVA or TransGas (it generally does) and, for Alberta gas, the TOPGAS levy. The possibility of an increase or decrease in royalties, TOPGAS levies or intraprovincial transportation tolls should be covered.

- The marketer or producer should give an undertaking in the gas supply contract that firm transportation arrangements are in place for the full contract volumes either on NOVA or TransGas. The user or its agents may wish to examine these arrangements.

- The contract should also define a clear obligation on the part of the marketer or producer to indemnify the user for any additional costs it incurs to acquire gas in the event the marketer fails to deliver as specified in the contract. Additional costs could include unused TCPL capacity charges, distributor penalties, and back-up supply costs. The distributors may give either a firm or best-efforts undertaking to backstop the user's gas supply arrangements, but the price of the gas would likely be higher than that in the user's gas supply contract.

- The marketer or producer should give a corporate warranty that it has the reserves to supply the required gas for the contract term. On longer term contracts

(more than two years) the buyer should also have the right to have a reserve evaluation performed and rechecked on an annual basis. Warrants for deliverability should also be included.

- Provisions relating to gas quality (normally it is simply stipulated that it must meet TCPL and distributor specifications) and delivery points must be included.
- Force majeure clauses should be scrutinized to ensure they are not unnecessarily broad, particularly with respect to deliverability of gas to either NOVA or TransGas. Force majeure as a result of a force majeure on NOVA or TransGas is usually acceptable.
- The terms and dates for billing and payment should coincide with transportation arrangements, particularly buy/sell agreements, to ensure that the user has sufficient time to be paid by the distributor (usually about the 20th of each month) before having to pay either the marketer or producer.
- "Regulatory-out" clauses are required in most gas supply contracts by marketers and producers. They permit either party to withdraw from the contract in the event a tax or royalty change or new regulatory measure makes the contract "materially uneconomic" for either party. They are for the most part intended to protect producers in the event of a dramatic increase in royalties. Consumers should note that the buy/sell contracts with the distributors or T-service contract with TCPL may not contain comparable provisions.

Transportation Arrangements

Users must decide whether to transport their gas under buy/sell agreements, or bundled or unbundled T-service. As the first step in arranging gas transportation, users should contact their distributors for the most up-to-date information on western and city-gate buy/sell agreements. These are standardized and there is little room for negotiation.

But there is some variance between distributors, hence users who have more than one plant location served by different distributors should know about the differences in obligations among the buy/sell agreements. Users served by Union Gas may be required under a western buy/sell to deliver at least part of their gas to the distributor in volumes which vary from day to day (i.e., FST delivery).

Users should also contact TCPL for the most recent tariff schedules and terms and conditions of its short-term firm transportation service.

Buy/Sell Agreements

Users should be aware of two considerations under either western or city-gate buy/sell agreements. First, if actual consumption over the contract year exceeds the volume sold to the distributor under a buy/sell agreement, the price of the excess gas consumed will be the distributor's undiscounted price of gas. This extra cost might be avoided if users can arrange to deliver incremental supplies acceptable to the distributor. Second, if consumption is more than 4-5% (depending on the distributor's tolerance) below the contracted annual quantity, the distributor may not purchase the excess gas from the user - which means the user may have to pay, under the purchase agreement, for unused capacity reserved on the NOVA or TransGas systems; as well as on the TCPL system if it is a city-gate buy/sell, or if the user is served by Union Gas, or is served by Consumers Gas and has chosen to provide its own supply of TCPL fuel gas. (See page 39).

Two key factors to consider in choosing between the different buy/sell options are fuel-gas costs (if the user is located in Consumers' franchise) and the costs of unused TCPL capacity (for users served by Centra Gas and Consumers Gas).

Fuel-Gas Costs (for users served by Consumers Gas only)

Under a western buy/sell with Consumers, the user sells gas to the distributor at the Alberta border or at the TransGas/TCPL interconnection. Consumers, as the shipper, transports the gas on TCPL's system. The user can choose to have Consumers provide the fuel gas on the TCPL system. (Consumers will then bear the risk of unused TCPL capacity charges). Implicitly, the user is charged the distributor's price for fuel gas, which was $1. 90/GJ in 1990-91. To transport gas from Alberta to its eastern zone in Ontario, TCPL will use an average of 7 to 8 per cent of the shipper's gas.

Using our previous example, included in the total cost of gas is a TCPL fuel component of:

Fuel Cost = 137,240 GJ x . 08 x $1. 90/GJ = $ 20,860/year

Under a city-gate buy/sell or a Consumers western buy/sell with the user bearing the TCPL capacity risk, the user is able to provide its own supply of fuel gas purchased in Alberta or Saskatchewan (at $1. 45/GJ, for example). The fuel costs to move the same quantity of gas will be:

Fuel Costs = 137,240 x . 08 x $1. 45 = $15,920/year

In this example, a user served by Consumers who opts for a city-gate buy/sell or a western buy/sell with the user bearing the TCPL capacity risk will realize fuel savings of $4,940/year (or 3. 6 cents/GJ). It must also contract to purchase and nominate (i.e., define how much gas will be needed) each month for additional gas used as fuel, which can vary between 6 and 9 per cent from one month to the next.

Unused TCPL Capacity Costs

For western buy/sells with Centra Gas or with Consumers Gas where the distributor provides TCPL fuel gas, no TCPL unused capacity charges will be incurred by the user because of under-consumption or supplier failure.

Users considering city-gate buy/sells with Centra or Consumers, or those considering western buy/sells with Consumers where the user provides TCPL fuel gas, must weigh the risk of unused capacity costs on the TCPL system against potential fuel-gas savings. Distributors now tolerate 4% or 5% variance between the user's actual annual consumption and its forecast consumption. (The user should contact the distributor for details of the exact tolerances). If actual consumption is less than forecast by more than the allowed variance, the distributor may reduce purchases of gas from the user at the city gate or the western point. This would mean the user pays for unused TCPL capacity costs under the above buy/sell options.

Assuming that the user in our example has entered into one of these buy/sell options (with FS transportation on TCPL) and uses 10 per cent less gas in the course of a year than forecast:

User's forecast ..... 137,240 GJ

User's actual consumption ..... 123,516 GJ

Variance ..... 13,724 GJ

Maximum volume variance allowed (4%) ..... 5,490 GJ

Penalty = Excess Variance (13,724–5,490) x TCPL 1991 (interim) Demand Charge ($.74/GJ)

= 8,234 x $.74/GJ = $6,093 or 4.4 cents/GJ

It may be possible to reduce or avoid unused capacity charges on TCPL by contracting for storage or by assigning unused capacity to other shippers, but such arrangements must be made in advance. Also, the ability to assign capacity may vary with economic and climatic conditions.

The example illustrates that the buy/sell options which leave the TCPL unused capacity risk with the user are most suitable for users who are confident that their actual annual consumption will not be less than 4–5 per cent below their contracted gas supply. Users should note that an unusually mild winter can push consumption outside the tolerance limits by 2–3 per cent.

Arranging the Buy/Sell Agreement

If the user decides to proceed with a buy/sell contract, it should contact the distributor to discuss the distributor's requirements and to get assistance. The distributor can verify the user's historical gas volumes, acting as a check on the user's own analysis.

The distributor may also comment on the user's forecast of how much gas it will need during the contract period, although the final judgement is the responsibility of the user. The user must estimate the required volume for the next 12 months only. Contracts usually provide for annual volume redetermination, even if they are for a term longer than one year.

Once the volume is established, the distributor prepares the buy/sell agreement. It will include the cumulative monthly projected consumption, which will be used to determine whether there is significant variation between projected and actual use as the year progresses.

The distributor will require the proper legal names and addresses of each of the participating parties. This is especially important for consortium transactions, where

there may be one seller to the utility under the buy/sell agreement, acting as agent for a large number of related users. There may be several sales contracts. A separate contract may be required for each user in the consortium. The sales contracts are relatively short, pro forma documents, and delays can be avoided if the user provides the distributor with the correct information at the outset. Distributors take from 4 to 12 weeks to prepare and implement buy/sell agreements, depending on their internal systems and current workload.

Administration of Buy/Sell Arrangements

Under buy/sell agreements, the user must administer the financial arrangements and nominate for gas supplies. Neither task is onerous. Most distributors will routinely pay the user on a monthly basis, sending payment together with an explanatory statement on the 20th day of each month. The user, in turn, must pay the marketer or producer for gas purchased, usually by the 25th of each month. The difference in the two amounts is the monthly savings from the transaction. In a consortium arrangement, the users may designate one of the members or a consultant as the administrator or agent responsible for paying the producer, and calculating and disbursing each member's share of the savings.

Nominating the gas volumes means to order the gas to be delivered by the producer, under the gas contract, and in the case of a city-gate buy/sell, to be shipped by TCPL. In general, nomination is quite straightforward, and marketers and distributors will help. Any necessary nominations to the producer, TCPL and distributors are normally made once, just before gas begins to flow under the supply contract. They are valid until further notice. Nominations or changes to nominations can be made by letter, facsimile or telex to the gas control department of the supplier, TCPL and the distributor.

Goods and Services Tax (GST)

The GST applies to direct-purchase arrangements, including buy/sells, at each stage, even though the user may be an exempt business or institution. The buy/sell arrangement is considered by Revenue Canada to be a commercial transaction and the user, or the agent, should register for the GST.

Under a buy/sell arrangement, the producer or marketer levies the tax on the user at the 7% rate. The user, in turn, levies the GST on its sale of the gas to the distributor, claims an input credit for the GST paid to the producer or marketer and remits the net GST to Revenue Canada. Finally, the distributor levies the tax on the user when it resells the gas at the user's premises.

If the user is a GST-taxable business, it will claim an input credit for the GST on the final gas bill paid to the distributor. If the user is an exempt business or institution, it will not be eligible to claim such an input credit. However, certain institutions qualify for a partial rebate of the GST paid on the final purchase from the distributor.

The end result is that the exempt business or institution bears GST (to the extent not rebated) on the full distributor sale price of gas, including the "savings" realized upstream.

T-service users pay GST on the purchase from the producer or marketer and on the transportation charges. If the user is a GST-taxable business it will claim an input credit for the GST paid. Exempt businesses and institutions may not claim input credits but certain institutions qualify for a partial rebate.

As a result, the exempt business or institution bears less GST using the T-service option than the buy/sell option, the difference being the unrebated part of the GST on the upstream savings. However, risk factors should also be considered in evaluating T-service against buy/sell arrangements.

Transportation Service on Distributor's System

All distributors offer both bundled and unbundled transportation or T-service. However, most users opt for a buy/sell arrangement which provides delivery to the burner tip. Unbundled T-service may be attractive to users with very high and predictable rates of take and who have some flexibility to control their energy requirements. Larger users may also wish to examine the bundled T-service option. Users interested in exploring these options should contact their distributor.

Summary of Buy/Sell Transportation Options and Associated Risks

Risk	Western Buy/Sell	City-Gate Buy/Sell
Actual consumption below accepted limits	Distributor may not accept user's excess supply - exposed to NOVA/TransGas (and, in some cases, TCPL) demand charges	Distributor may not accept user's excess supply - exposed to TCPL and NOVA/ TransGas demand charges
Actual consumption above forecast	Distributor will supply gas at its higher price (User may be able to negotiate incremental supplies)	Same as western buy/sell
Interruption in user's supply	Distributor will provide firm or best efforts backstopping at prices at least equal to its average cost of gas	Same as western buy/sell

The Decision

A user's evaluation of the price terms of the different options should resemble the examples in the following table. The examples are based on a user served by Consumers Gas who uses 3,650,000 cubic metres per year or 137,240 GJ, operating at a high load factor.

Summary of Options *(For Illustration Purposes Only)*[1]

	Distributor Supply	Western Buy/Sell
Gas Purchase from Marketer at Alberta Border:		
137,240 GJ/yr	n. a.	$198,998
Negotiated Price/GJ		$1. 45
Gas Sale to Distributor.	n. a.	$282,714
Reference Price/GJ[2]		$2. 06
Gross Savings	n a.	$ 83,716
Transportation:		
-TCPL($. 813/GJ)[3]	n. a.	n. a.
-Fuel($. 116/GJ)[4]	n. a.	n. a.[7]
-Distributor[5]	n. a.	n. a.
Net Savings	n. a.	$ 83,716
Annual LDC Gas Bill (Gross)[6]	$472,975	$475,675
Less: **Net Savings**	n. a.	$ 83,716
Final Gas Bill	$472,975	$391,959
Unit Cost per GJ	$3. 45	$2. 86

Users should note that all of the key factors are subject to change and, hence, the ranking of the options will change over time. Also, the table does not reflect the differences in convenience, administration costs and risks among the alternative options. The table does illustrate that, on a per unit cost basis, the differences between the direct-purchase options are relatively small — implying that convenience and risk factors may be the principal determinants in the user's decision.

City-Gate Buy/Sell	T-Service All The Way Unbundled	Bundled
$198,998 $1. 45	$198,998 $1. 45	$198,998 $1. 45
$415,622 $3. 03	n. a	n. a
$216,624	n. a.	n. a.
$111,614 $15,920 n. a.	$111,614 $15,920 $65,421[8]	$111,614 $15,920 $55,863
$ 89,090	n. a.	n. a.
$475,675 $ 89,090	n. a.	n. a.
$386,585 $2. 82	$391,953 $2. 86[8]	$382,395 $2. 79

footnotes overleaf

1 Based on a user served by Consumers Gas.

2 Reference price will be different for each distributor, and may vary over time.

3 TCPL toll is the interim toll for 1991 at 100% load factor. Tolls are subject to change.

4 Fuel Cost = 137,240 GJ x 0. 08 x $1. 45/GJ = $15,920

5 Based on Consumers' 1991 Rates 300 and 310 for unbundled T-service and Rate 110 for bundled T-service. Rates are subject to change.

6 Based on Consumers' 1991 gas sales Rate 110.

7 Assumes the user chooses to have Consumers provide fuel gas on TCPL.

8 The unbundled is more expensive than the bundled T-service option in this example because Consumers' Rate 300 for unbundled transportation is not designed for the relatively low gas volumes assumed. Unbundled is cheaper than bundled T-service at higher consumption levels.

Summary of How to Proceed

The following is a summary of the steps required and important considerations in choosing a natural gas purchase option, as detailed in this and previous chapters:

- Select a project manager from your organization to coordinate the process.
- Ask the distributor for a list of natural gas consultants, producers, marketers and brokers operating in its franchise area.
- Decide whether or not to hire consulting advice. The use of a consultant is recommended for most users. Consultants may or may not be affiliated with a supplier. They offer a wide range of services and charge different rates (hourly, project basis, per cent of savings). Shop around for a consultant and ask for references.
- Identify the various locations where gas and alternate fuels are consumed and identify a contact person at each location.
- From records, forecast on a monthly basis the energy consumption (natural gas and alternate fuels) over a one-, two- and three-year period for each location. Ensure that planned additions and deletions of installations are considered.
- Group the data by distributor franchise.
- Contact the appropriate distributor and discuss its sales rates based on the forecast data.
- Prepare a Request for Proposals (RFP) for gas supply and call for bids from several suppliers. The RFP should, as a minimum, indicate:
  - the class of user (industrial, agricultural, cooperative, etc.);
  - the number, locations and franchise areas of user installations;
  - the approximate daily and annual volumes required for each end-use location;

- the desired duration of the supply arrangement;

- the type of transportation arrangements, if known.

- The RFP should request the following information from the supplier:

  - price at a defined delivery point indicating treatment of royalties, taxes, TOPGAS levy, and NOVA/TransGas/TCPL tolls;

  - any take-or-pay or other fixed cost obligations;

  - supply security (reserve diversity, back-up arrangements);

  - evidence of financial viability;

  - evidence of deliverability (firm transportation capacity, provincial removal permits);

  - list of customers and references.

- Evaluate and compare the proposals against the distributor supply option in terms of supply security, economics (including transportation) and administrative complexity. It is recommended that the proposals be reviewed by someone with extensive experience in natural gas supply.

- Decide whether to remain with or return to distributor gas supply. If the decision is to pursue alternate supply arrangements, continue the steps described below.

- Select your transportation option. Discussions with your distributor and TCPL on the appropriate transportation option (T-service, buy/sell) and dates of deliveries should take place concurrently with the process for arranging supply.

- Select your supplier(s) and draw up the gas supply contract. It is recommended that consulting advice be obtained from someone with specific expertise in natural gas supply contracts. As a minimum the contract should contain:

  - Contract duration and delivery dates;

- Annual and daily quantities;
- Price at the delivery point and terms of renegotiation/ arbitration, if necessary;
- Warranties by the supplier that firm transportation and adequate reserves are available to match firm contract quantities;
- Indemnifications by the supplier against any costs incurred by the user due to supply failure;
- Provisions setting out gas quality, force majeure, required notices, and terms and dates for billing and payment;
- "Regulatory-out" clauses where changes caused by government action make the terms of the contract excessively burdensome or unenforceable.

- Draw up the transportation contract(s) with the distributor and TCPL, if necessary, ensuring that the terms and conditions are compatible with those of the supply contracts.
- Appoint a gas supply administrator to oversee the performance of the contracts and periodically re-evaluate the gas purchasing options. It is essential that contract dates and timing provisions, including renewal notices, be monitored and respected.

Appendices

Case Study One:
Mid-sized Manufacturing Company

Company A is a medium sized manufacturing company that uses natural gas for space heating in its production plants, warehouses and office buildings. It also uses natural gas to provide the necessary heat for its manufacturing processes. The company has two production plants. One plant is located in Niagara Falls. The second plant, which also includes an office complex and a large warehouse, is in Scarborough. Both plants are served by Consumers Gas.

The company currently consumes 3 million cubic metres of gas annually for space heating, and 6 million cubic metres for production. Of the total 9 million cubic metres, 3.5 million are consumed at the Niagara plant and 5.5 million in Scarborough.

Within a few months of the announcement of natural gas deregulation in October 1985, the plant managers were approached by several gas marketers and producers about purchasing natural gas directly, rather than from a distributor.

During 1986 the plant managers from both plants attended seminars organized by the Ontario Ministry of Energy to learn more about the details of natural gas deregulation and direct purchases. Late in 1986, based on a recommendation from the plant managers, the company's management committee decided to explore in detail the possibility of a direct purchase to begin May 1987. In January 1987, they retained a natural gas consultant.

With the help of the consultant, the company analyzed its pattern of gas consumption or load curve at both plants and the mean day volume (MDV) or average requirement for both plants was estimated to be 24,700 cubic metres per day (i.e., total annual consumption divided by 365). A tender document was prepared and eight marketers and producers that would be invited to submit quotations for a one-year and a two-year gas supply were identified. At the same time, a meeting was organized with the distributor to inform it that the company was seriously considering purchasing gas for both its plants directly from either a marketer or producer. At this meeting, the company reviewed with the distributor the gas supply specifications in its tender document, and the distributor explained the alternative transportation arrangements, including the buy/sell options.

In early February the tender documents were issued requesting a response by the last week of the month. In the meantime, the consultant was asked to assess the different transportation options and to make a recommendation. The consultant was advised that the Niagara plant was having production problems and that the company might need to be shut down for up to four months for major repairs within the next 12 months, reducing gas requirements by as much as one million cubic metres. Based on this information, the consultant's advice was that a western buy/sell was the most appropriate option.

The consultant's conclusion was based on analysis which indicated that the unused capacity charges under a T-service contract with TCPL would likely offset any fuel cost savings in the event of a plant shutdown. However, given the company's stable pattern of gas consumption, the consultant advised that in any future direct purchases T-service should be considered seriously.

Case Study Two:

Consortium of School Boards

Eight School Boards in and around a major Ontario city decided in 1987 to assess the advantages of purchasing their natural gas directly. Their combined annual gas consumption was about 20 million cubic metres per year for space heat and hot water for some 400 buildings. The Boards read about the considerable benefits obtained by other similar institutions and wished to explore the matter further. They also believed that they would get a better price and reduce their individual transaction costs by pooling their requirements and forming a consortium. The School Boards recognized that they did not have the expertise on staff to assess and implement a direct gas purchase transaction. On January 7, 1988 they retained a natural gas consultant and a lawyer knowledgeable and experienced in negotiating gas purchase contracts.

The advisors concluded that a direct purchase arrangement was a practical option that would probably save the School Boards a considerable amount of money.

Once the legal advisor prepared an agreement to establish the consortium, the Boards assessed their gas requirements over the next 12 months of the first contract period (gas contracts normally provide for yearly renegotiation of volumes). The largest of the eight Boards had a full time energy management engineer on staff who was primarily responsible for energy efficiency programs. The energy manager worked closely with the consultant and the local distributor to establish a realistic consumption target. The local distributor provided the consumption data for the most recent 12 months after having been provided with the account numbers of the 400 facilities of the eight Boards. The distributor also used its computer programs to normalize the most recent 12 months' consumption to long-term average weather conditions, since the previous winter had been abnormally mild. The consultant and the energy

manager adjusted this normalized historical figure to allow for the opening of several new facilities in the fall of 1988 and the impact of an aggressive energy management retrofit program due to be implemented between April and July of that year. That information was conveyed to the distributor on February 1, 1988.

The advisors then solicited and obtained bids from five producers and brokers who were able to supply gas. Only Saskatchewan gas suppliers were contracted, as there were fewer regulatory restrictions associated with buying Saskatchewan gas. All five suppliers submitted bids within three weeks. All of the five quoted firm price bids for one and two years. Three said they would be prepared to enter into a five-year contract on the basis of firm prices in years one and two, and an arbitration provision to set the prices in years three, four and five in the event the parties failed to agree. The advisors recommended a two year contract to the Boards, and evaluated the five bids from the point of view of security of gas supply arrangements, financial viability of the supplier, price, and the track record of that supplier in other direct purchase transactions. The advisors talked to existing clients of all of the five. Two weeks after the bids were submitted the Boards chose a supplier.

The Boards' legal advisor then set to work to negotiate a gas sales contract. Over a period of three weeks, the legal advisor negotiated several changes in the "standard" gas sales contract offered by the producer, which resulted in a more reasonable allocation of risks between the two parties.

Once the advisors had sent out the solicitation for gas supplies, the Boards and their advisors met with the local distributor to sort out their options for transportation. The options included T-service, an Ontario buy/sell, and a western buy/sell. The Boards quickly selected the western buy/sell, since it was the most convenient and offered more protection against pipeline demand charges. The Ontario buy/sell would have required the Boards to contract directly with TCPL for transportation from the west to the distributor's service area, and would have meant excess capacity

charges if they used less gas than they contracted for, in the event of another very mild winter. T-service was not practical for users like the School Boards, who have seasonal load factors in the 35-50 per cent range.

After the Boards had decided upon the western buy/sell arrangement, and had given the distributor final volume estimates for the first year, the distributor began to prepare the agreement. Because the utility was processing several dozen requests for buy/sell agreements, it asked for 45 days to deliver an executed buy/sell. It met this deadline, and once the Boards' legal consultant had received the agreement and carefully reviewed it with them, the Boards executed the document. Since they were members of a consortium, all eight members executed both the buy/sell agreement and the gas sales agreement with the supplier. Then the distributor signed a short-term transportation contract with TCPL. After all the documents had been executed and the supplier had obtained a removal permit from the government of Saskatchewan, deliveries of gas began on April 1, 1988.

The Boards chose to administer the direct purchase arrangements themselves. They could have used the advisors they hired to implement the project, but it was agreed that the energy management engineer who worked for the large City Board would administer the direct purchase arrangements for the consortium and the City Board would charge a small fee. This was about $500/month to cover costs, which the consortium members would share in proportion to their gas consumption. Administration consisted of invoicing the distributor, receiving the funds, paying the producer, and distributing the savings on a quarterly basis to the consortium members, as well as gas nomination matters. Both the supplier and utility accepted one nomination of the daily volume until further notice. The administration of the direct purchase agreements was not a time consuming or complicated process.

The Boards implemented the direct purchase transaction in just under three months from the date they appointed their professional advisors, and within four months of the decision to investigate their purchase options. Their cost savings in the first year of operation were about $750,000.

Case Study Three:
Small Commercial User

In late 1990 a retail outlet in Metropolitan Toronto received a telephone call from Canada-Wide Gas Company, a demand aggregator, offering to reduce the retailer's natural gas bill if Canada-Wide were retained to supply all the retailer's gas requirements. The retailer currently purchases gas from its distributor, Consumers Gas, and consumes approximately 1700 GJ of gas annually. The total annual gas bill is $7,500.

The retailer expressed interest and a few days later received some promotional literature together with two forms to fill out: one authorizing Canada-Wide to purchase gas on the retailer's behalf and a second "agency letter" directed to Consumers Gas, authorizing Consumers to purchase the retailer's requirements from Canada-Wide. The promotional literature explained that Canada-Wide would pool the retailer's gas requirement with that of many other companies in order to negotiate a large-volume discount with suppliers and to reduce administration costs. The material promised a rebate cheque every 6 months, which would, on an annual basis, amount to approximately 10% of the price Canada-Wide received for the retailer's gas from the distributor. Canada-Wide would charge a "signing" or "initiation" fee of $150 that would be deducted from the first savings cheques.

The retailer was somewhat confused by this material, in particular the reference to 10% of the price paid by the distributor to Canada-Wide, since the only natural gas cost it was aware of was the monthly gas bill it received from Consumers. The retailer therefore called its distributor,

Consumers, for advice. In addition, the retailer talked to a few business associates that had also been approached.

The Consumers representative suggested the retailer ask Canada-Wide a few questions, including:

- Would Canada-Wide provide references from existing clients?
- What was the projected annual amount of the rebate expressed as a percentage of the amount the retailer pays annually to Consumers for traditional gas service?
- Was the projected level of rebate guaranteed?
- If not, what were the projected savings in gas costs? That is, for how much less per GJ could Canada-Wide purchase gas than the distributor, Consumers Gas? What percentage of this saving would be passed on to the retailer?
- If only a share of "net savings" were rebated to the retailer, what were the costs incurred by Canada-Wide on a per GJ basis? Was there a "cap" on these costs?
- For how long was the retailer being asked to commit itself to Canada-Wide? If it was one year, was there an automatic renewal or was some positive action required by the retailer to terminate the arrangement?
- Given the projected rebate level, how long would it take the retailer to recover the signing or initiation fee?
- Was there a written contract between Canada-Wide and the retailer which spelled out these and other pertinent matters, including any potential additional risks incurred?
- How long had Canada-Wide been in the gas supply business and what was the expertise and background of its principals?
- Did Canada-Wide act exclusively on behalf of users or did it have its own gas production? If it was also a producer or if it acted on behalf of producers, how did Canada-Wide propose to ensure it had negotiated the best possible price for its customers? Did it, for example, insist on competitive bids from independent suppliers?

The retailer posed these questions to a Canada-Wide representative at a meeting at its store and was generally satisfied with the answers it received. The Canada-Wide representative produced a contract which outlined:

- projected gross savings from the direct-purchase arrangement between Canada-Wide, a named gas supplier, and Consumers Gas;
- the costs which Canada-Wide paid out of its share of savings, and the fact that the retailer was not responsible for those costs;
- the share of the gross savings payable to the retailer;
- the dates when these "rebates" would be paid;
- the fact that Canada-Wide did not guarantee a particular rebate level.

Canada-Wide indicated that it purchases gas produced in Saskatchewan at $1.70/GJ and resells it to Consumers at $2.18/GJ for a unit savings of $.48/GJ, which results in a gross savings of $816 on the retailer's annual consumption. Canada-Wide would share the gross savings on a 70% – 30% basis (70% to the retailer). The retailer would save approximately $570 annually, or 7.6% of its total annual gas bill. (However, as of April 1991, Consumers' approved buy/sell purchase price has fallen to about $2.06/GJ. The gross savings from these arrangements would be $612, and the retailer's 70% share would be $428, or 5.3% of its total gas bill.)

The retailer also discovered that two of its business associates had entered into contracts with Canada-Wide the previous year and were generally satisfied. They had received rebate cheques on time in approximately the amounts reflected in the explanation given to them by Canada-Wide marketing representatives. They indicated that the savings were modest but, since virtually no effort was required on their part, it appeared worthwhile.

Glossary Of Terms

ANNUAL LOAD FACTOR
The annual load factor is a mathematical indicator of the way in which a customer consumes gas over the year. It is expressed as the average daily volume of gas consumed over the year as a percentage of the maximum daily contract volume.

BACK-STOPPING
A service that either the marketer or user arranges whereby alternate supplies of gas are available in the event a user's gas supply fails to be delivered.

BROKER
A gas broker, narrowly defined, is a person who brings together buyers and sellers of gas without taking title to any gas. Thus the broker acts as an agent or consultant. Brokers may also provide contract administration services to buyers.

BUNDLED SERVICE
A single charge that covers a number of services provided by the distributor. A fully bundled service includes gas transportation, storage and load-balancing.

BUY/SELL AGREEMENT
Under a buy/sell arrangement, the user buys its own supply of gas from a producer or marketer at a negotiated price. The user sells the gas to the distributor, either at the Alberta border (or the interconnection between TransGas and TransCanada PipeLines) or at the city gate, at the price approved by the Ontario Energy Board. The distributor mixes the gas with the balance of its gas supplies, and then sells to the user as a sales customer under the appropriate approved rate schedule.

CONTRACT CARRIAGE
A service provided by pipeline companies and distributors, for the transportation of gas not owned by the pipeline. (See also T-service)

CORE MARKET
The Ontario Energy Board has defined the core market as those volumes that are sold by the distributor, excluding buy/sell volumes. Others define the core market differently, to include all residential and commercial customers, public institutions such as hospitals and schools, and non-industrial companies with relatively small consumption.

CUSTOMER CLASSES
The division of the customers of a distributor, for rate-making purposes, into groups with similar gas-use characteristics.

CUSTOMER LOAD
The total amount of gas used by a customer in a fixed period of time, usually one year.

DEMAND AGGREGATOR
A company that specializes in organizing several users into a group for the purpose of purchasing gas directly from gas marketers or producers. An aggregator will normally act on behalf of the user as its agent and will often administer the contract on an ongoing basis. Normally a demand aggregator does not take title to the gas.

DEMAND CHARGE
A charge usually designed to recover a portion of the fixed and capital costs incurred by the gas distributor or pipeline company whether or not any gas is consumed. (These charges often include the expenses of meter reading, billing, collecting, and customer accounting as well as those capital costs associated with the service).

DIRECT PURCHASE
Natural gas supply purchase arrangements negotiated directly between marketers or producers and users.

DUAL FUEL CAPACITY
A customer's capacity to use an alternate fuel, such as light or heavy fuel oil, as well as natural gas.

FIRM SERVICE (FS) OR FIRM T-SERVICE
A transportation service contract with a distributor or a pipeline company to carry up to a maximum daily volume of gas. It cannot be curtailed or interrupted, except under extraordinary circumstances.

FIRM SERVICE TENDERED (FST)
A specialized transportation contract offered by TCPL. Under the terms of this service, TCPL can vary the daily deliveries of a shipper's gas within certain limits, which implies that the shipper must deliver gas to TCPL on the variable basis established by TCPL. However, TCPL must deliver a fixed volume of gas in Ontario on an annual basis.

FUEL GAS
Gas used as fuel by the pipeline companies (e.g. NOVA and TransCanada PipeLines) to operate the compressors that move the gas through the pipeline.

GIGAJOULE
A unit of energy. One gigajoule equals 948,213. 3 British Thermal Units (BTU).

INTERRUPTIBLE T-SERVICE
A gas transportation service contract that allows flow to be interrupted at the option of the pipeline company or distributor.

LDC
An acronym for "local distribution company," i.e., a gas distributor.

LOAD-BALANCING
Users seldom use the same volume of gas every day of the year due to operational and weather factors, but for economic reasons they often purchase fixed daily volumes of gas supply. Distributors can supply "make up" gas to meet the customer's excess demand above supply and reallocate excess supply.

LOAD FACTOR
(See Annual Load Factor)

MARKETER
A company which sells gas. A marketer acts as a principal and takes title to the gas, selling it to users or distributors. A marketer may obtain gas supply from any one or a combination of its own reserves, other producers or supply aggregators.

OPERATING DEMAND VOLUME
Volumes specified in the distributor's firm contracts with Western Gas Marketing Limited and other suppliers less the volumes deemed to have been displaced by direct sales.

PEAK DEMAND
The maximum daily amount of gas demanded over a specified period of time, such as a month or a year.

POSTAGE STAMP RATE
A rate for the transportation of gas (e.g., by a distributor) which does not depend on the distance over which the gas is transported.

REMOVAL PERMITS
A permit for the removal of gas from the province granted by the Alberta Department of Energy, or the Saskatchewan Department of Energy and Mines, or the B.C. Ministry of Energy.

SUPPLY AGGREGATOR
A gas marketing company that specializes in contracting with several producers for gas supplies from different gas reservoirs to form a diversified supply pool to increase reliability of supply. Supply aggregators normally act in the interests of their producers.

TAKE-OR-PAY PROVISION
A clause or provision in a gas supply contract requiring that gas contracted for, but not taken, will be paid for by the purchaser.

TOPGAS & TOPGAS II
Two banking consortia formed in 1982 and 1983 respectively, which have made a total of approximately $2. 65 billion of take-or-pay payments to Alberta gas producers for gas contracted for but not taken by TransCanada PipeLines.

UNABSORBED DEMAND CHARGE
Charges which occur when a shipper utilizes less than its contracted pipeline capacity on the NOVA, TransGas or TCPL systems.

UNBUNDLED SERVICE
Transportation service on the distribution system exclusive of storage and load-balancing services, which must be purchased separately (see Bundled Service).

List of Associations and Agencies

Associations

IPAC The Independent Petroleum Association of Canada is a trade association of smaller, for the most part Canadian-owned, oil and natural gas producers active in Canada.

Independent Petroleum Association of Canada
Suite 700
707 Seventh Avenue S. W.
Calgary, Alberta
T2P 0Z2
Telephone: (403) 290-1530

CPA The Canadian Petroleum Association is a trade association for larger, mostly foreign-owned, multinational oil companies active in Canada. They tend to be integrated operators, active in refining and marketing of petroleum products as well as oil and gas exploration and production.

Canadian Petroleum Association
3800-150 Sixth Avenue S. W.
Calgary, Alberta
T2P 3Y7
Telephone: (403) 269-6721

CGA The Canadian Gas Association is a national trade association of companies involved in many aspects of the natural gas business, including distributors, pipelines, producers and equipment manufacturers. The CGA also certifies the safety of gas burning equipment.

Canadian Gas Association
55 Scarsdale Road
Don Mills, Ontario
M3B 2R3
Telephone: (416) 447-6465

ONGA The Ontario Natural Gas Association is a trade association consisting of companies and individuals active in the Ontario natural gas industry, including transmission and distribution companies, natural gas producers, contractors and equipment manufacturers and suppliers.

Ontario Natural Gas Association
77 Bloor Street West
Suite 1104
Toronto, Ontario
M5S 1M2
Telephone: (416) 961-2339

IGUA The Industrial Gas Users Association is an association which represents major industrial users of natural gas in Ontario, Quebec and Manitoba.

Industrial Gas Users Association
170 Laurier Avenue West
Suite 804
Ottawa, Ontario
K1P 5V5
Telephone: (613) 236-8021

Agencies

Alberta Department of Energy
The department responsible for the development and implementation of energy policy for the Alberta Government. It advises the Minister of Energy and the Cabinet on energy policy matters.

Alberta Department of Energy
9th Floor
Petroleum Plaza, South Tower
9915-108 Street
Edmonton, Alberta
T5K 2C9
Telephone: (403) 427-8034

Energy Resources Conservation Board
This board is the regulatory agency for the oil and gas producing industry in Alberta. It regulates production practices, monitors reserves, regulates the technical operations of Alberta pipelines including NOVA and administers the Alberta provincial surplus test and, in that context, recommends removal permits for approval to the Alberta Government.

The Energy Resources Conservation Board
640-5th Avenue S. W.
Calgary, Alberta
T2P 3G4
Telephone: (403) 297-8311

Public Utilities Board of Alberta
This board regulates the tolls and financial aspects of pipelines and distribution utilities within the Province of Alberta.

The Public Utilities Board of Alberta
11th Floor
10055 - 106th St.
Edmonton, Alberta
T5J 2Y2
Telephone: (403) 427-4901

Alberta Petroleum Marketing Commission
This commission advises the Government of Alberta regarding the marketing of natural gas produced in Alberta. In particular, it administers the Take-or-Pay Cost Sharing Act of Alberta.

Alberta Petroleum Marketing Commission
1900 - 250 Sixth Avenue S. W.
Calgary, Alberta
T2P 3H7
Telephone: (403) 297-5500

Saskatchewan Department of Energy and Mines
This department formulates and implements energy policy for the Province of Saskatchewan. It is responsible for the administration of the removal permit system needed to export gas from Saskatchewan.

Saskatchewan Department of Energy and Mines
1914 Hamilton Street
Regina, Saskatchewan
S4P 4V4
Telephone: (306) 787-2526

Energy Mines and Resources Canada
This is the department of the Government of Canada responsible for the formulation and implementation of national energy policy.

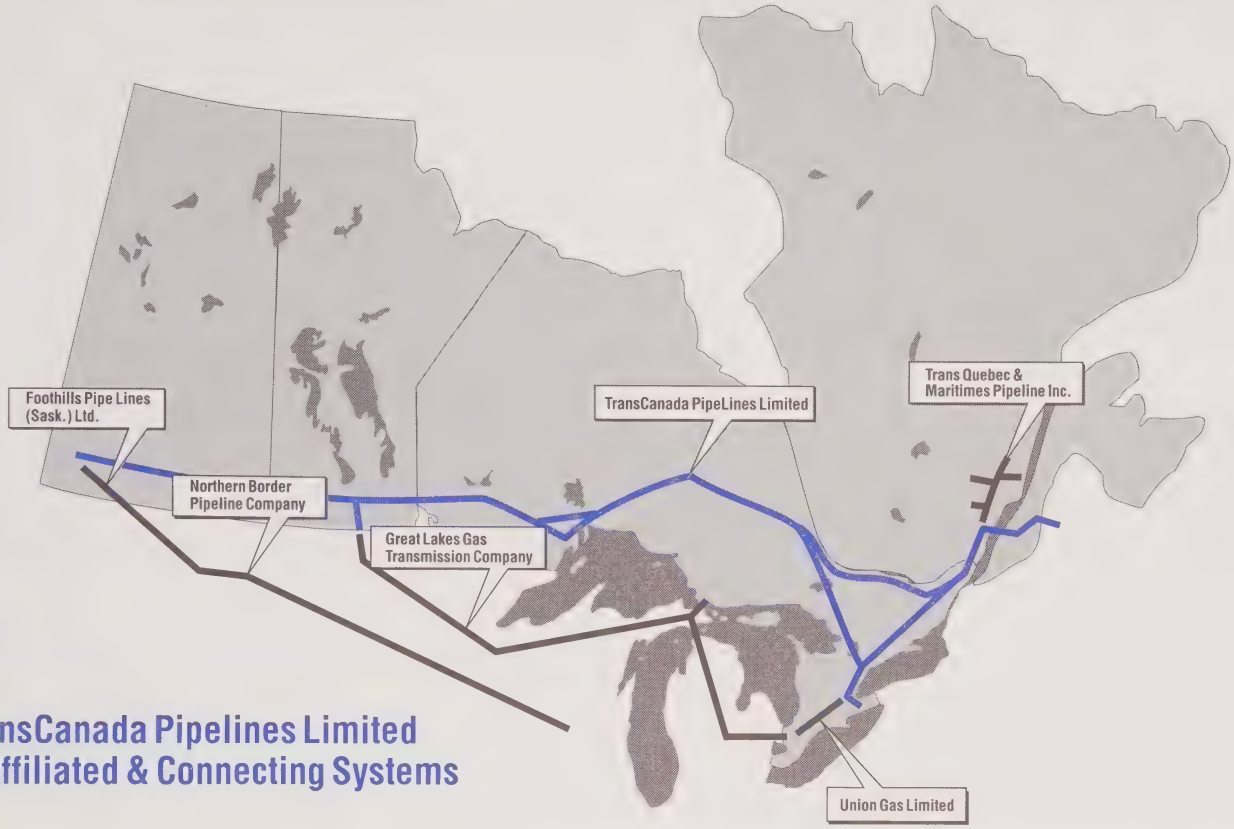
Energy Mines and Resources Canada
580 Booth Street
Ottawa, Ontario
K1A 0E4
Telephone: 1-800-267-5166

Ontario Ministry of Energy
This is the ministry of the Ontario Government which formulates and implements energy policy in that province.

Ontario Ministry of Energy
56 Wellesley Street West
9th floor,
Toronto, Ontario
M7A 2B7
Telephone: (416) 327-1234

The Ontario Energy Board
This agency regulates the gas distribution utilities in the Province of Ontario.

The Ontario Energy Board
P. O. Box 2319
2300 Yonge Street
Suite 2601
Toronto, Ontario
M4P 1E4
Telephone: (416) 481-1967

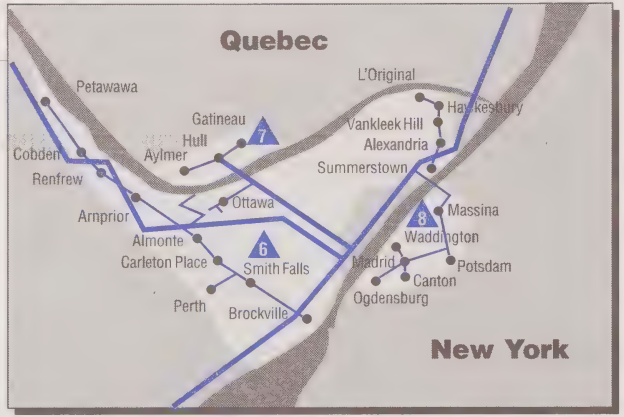


TransCanada Pipelines Limited & Affiliated & Connecting Systems

This map is a representation only - Not to scale.

The Consumer's Gas Company Ltd. facilities

Other facilities

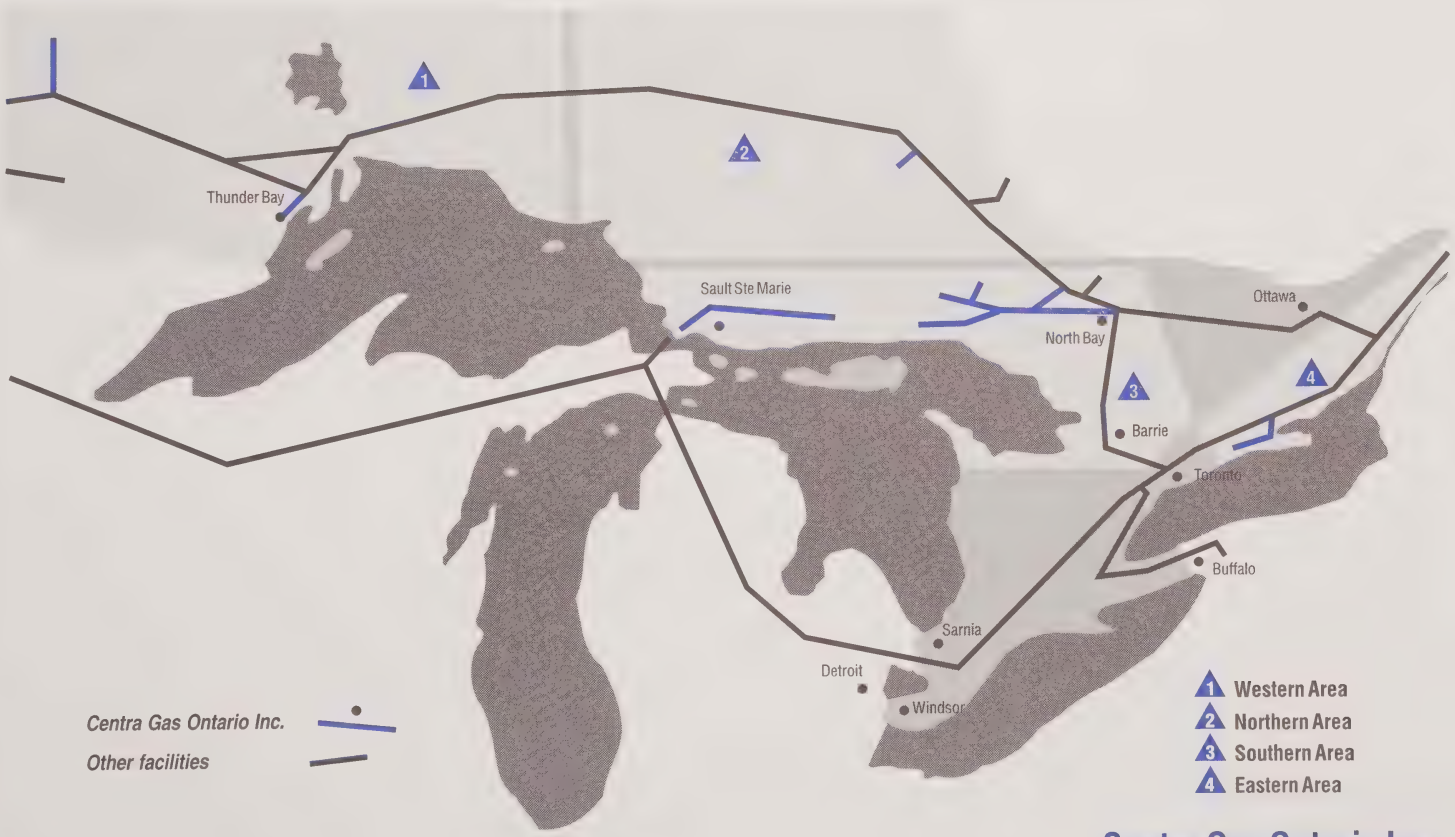


1. **Metro Region**
2. **Central Region**
3. **Northern Region**
4. **Western Region**
5. **Niagara Region**
6. **Eastern Region**
7. **Gazifère Inc.**
8. **St. Lawrence Gas**

The Consumers' Gas Company Ltd.

This map is a representation only - Not to scale.


Georgian Bay
Lake Simcoe
Lake Huron
Owen Sound
Toronto
Lake Ontario
Guelph
Waterloo
Cambridge
Goderich
Kitchener
Oakville
Burlington
Hamilton
Sarnia
London
Brantford
Simcoe
Sarnia
Lake St. Clair
Chatham
Lake Erie
Windsor
1
2
3
4
Union Gas Ltd. facilities
Other Transmission facilities
Storage
1 Northern Region
2 Eastern Region
3 Western Region
4 Central Region
Union Gas Limited Pipeline Systems
This map is a representation only - Not to scale.



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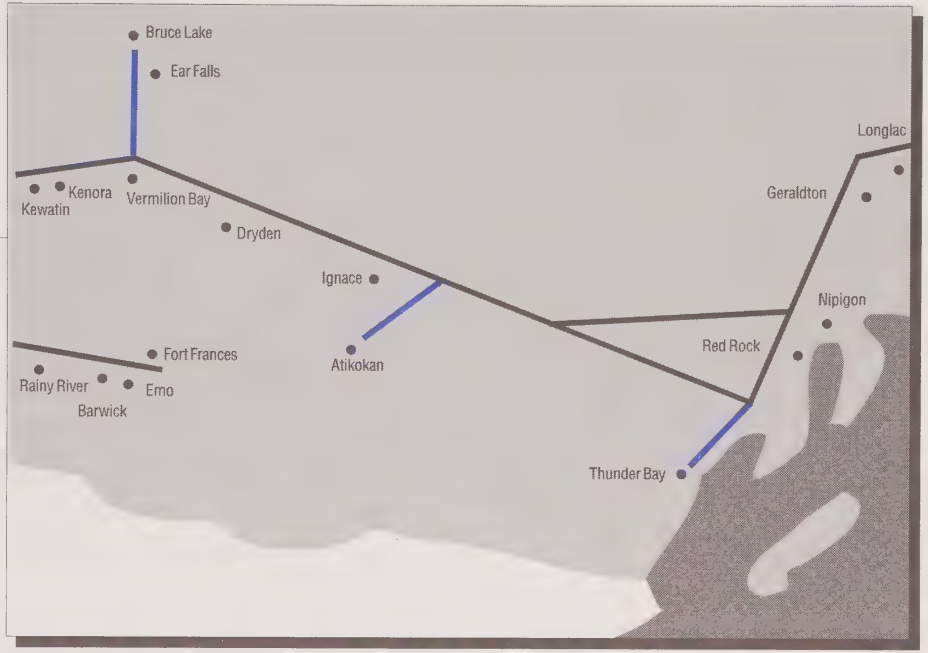

Centra Gas Ontario Inc.

Other facilities

Centra Gas Ontario Inc. *Western Area Detail*

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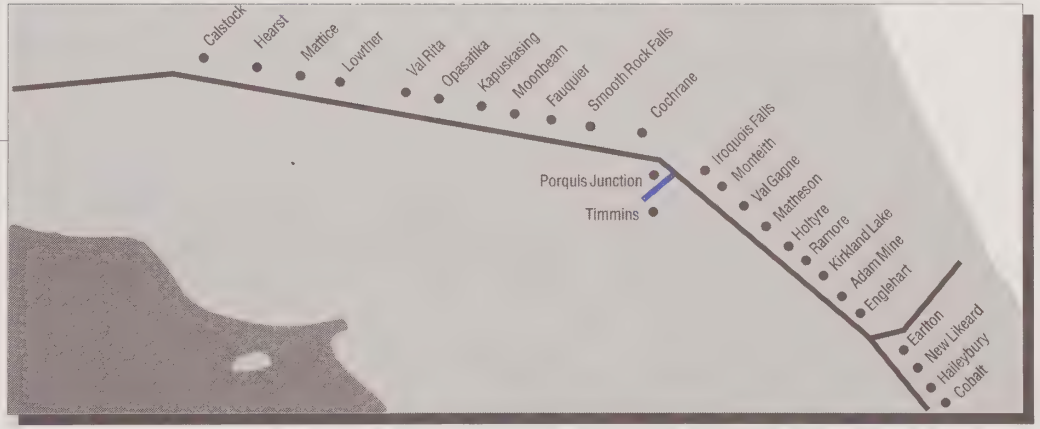

Centra Gas Ontario Inc.

Other facilities

Centra Gas Ontario Inc. *Northern Area Detail*

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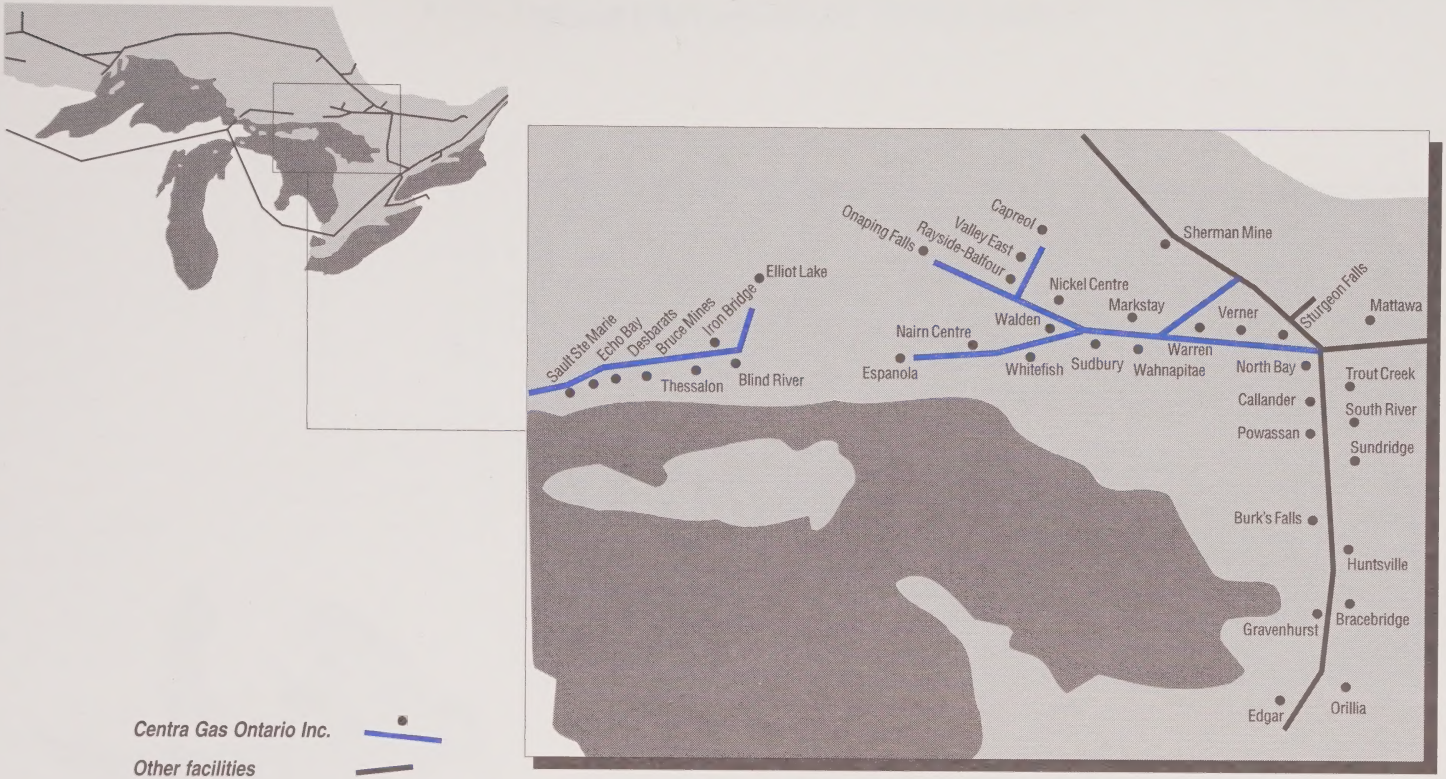

Centra Gas Ontario Inc. *Southern Area Detail*

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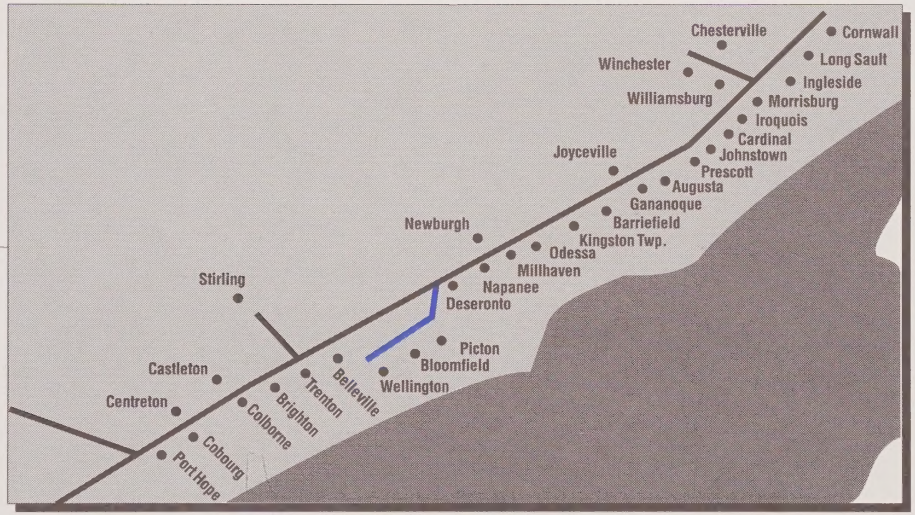

Centra Gas Ontario Inc.

Other facilities

Centra Gas Ontario Inc. *Eastern Area Detail*

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Toronto, Ontario
M7A 2B7

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